Examining acculturation, gender, and BMI across different racial and ethnic groups

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Study Overview

The current study explored the relationship between acculturation and BMI levels across different racial/ethnic groups and how external factors such as education, income, and gender may impact BMI levels. The study also examined the current WHO standard cutoffs for overweight & obesity for Asian American groups.

Literature Review

Obesity Trends: BMI levels have increased in the United States for the last 30 years, resulting in subsequent rise in cardiovascular diseases (Rosas et al., 2015; Singh et al., 2011). Latinx groups were found to have the highest risk for overweight and obesity compared to other minority groups, and significant generational differences were also found (Albrecht & Gordon-Larsen, 2013; Bates et al., 2008).

Standard WHO BMI Cutoffs: Asian Americans within the normal range in the current BMI standard had increased heart-related diseases (Wang et al., 2007; WHO Expert Consultation, 2004)

Acculturation & BMI: A meta-analysis study found that higher acculturation rate resulted in higher BMI or increased weight (Delavari et al., 2013).

Gender, Education & BMI: Cheong et al. (2010) found that gender and education were significantly associated with BMI.

Methods

Participants

We recruited 278 participants but were only able to analyze 188 at this time. Participants consisted of students at the University of Bridgeport and Survey Monkey users. 178 of the participants were in the 18-29 age range, 9 were in the 30-44 age range, and 1 participant did not answer. There were 133 females and 54 males. 15 participants identified as Asian American, 36 Hispanic/Latinx Americans, 75 African/Black Americans, 27 Caucasian Americans, and 23 as multi-racial.

Procedures

Majority of participants were recruited from psychology courses at the University of Bridgeport and were offered an extra credit for participation. An alternative extra credit assignment was provided to those who chose to decline from the study. Informed consent forms were provided to students during the recruitment stage and participants were given time slots, in which the questionnaire would be administered. All questionnaires were taken in Bates Hall computer lab and submitted anonymously. The duration of the questionnaire ranged between 15-20 minutes. To broaden the target population, the survey was submitted through the Asian American Psychological Association listserv via Survey Monkey.

Instruments

The Abbreviated Multidimensional Acculturation Scale **(**Zea, 2003)**)** was used due to its reliability, concurrent validity, discriminant validity, and convergent validity. Participants completed a questionnaire consisting of items related to demographic information, lifestyle, and nutrition. Variables measured included: BMI, gender, age, race, and household Income. BMI was determined from self-report of weight and height. Results of the AMAS were two parallel variables based on a Likert-type scale: U.S culture identity and country of origin identity. 21 items related to U.S culture measuring acculturation, and 20 questions related to country of origin. Participants either identified strongly with one or identified somewhat equally.

Results

Hypothesis (1): Acculturation has a significant, positive correlation with Body Mass Index (BMI).

Correlations

		Acculturation_U.S	Acculturation_Origin	BMI
Acculturation_U.S	Pearson Correlation	1	-.025	-.084
	Sig. (2-tailed)		.743	.273
	N	182	180	172
Acculturation_Origin	Pearson Correlation	-.025	1	-.035
	Sig. (2-tailed)	.743		.647
	N	180	186	175
BMI	Pearson Correlation	-.084	-.035	1
	Sig. (2-tailed)	.273	.647	
	N	172	175	177

Hypothesis (2): There is a significant difference between BMI levels and race/ethnicity.

ANOVA

BMI

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	396.784	4	99.196	2.386	.053
Within Groups	7110.307	171	41.581		
Total	7507.090	175			

Hypothesis (3): Income and gender have a significant impact on BMI levels.

Correlations

		BMI	Income
BMI	Pearson Correlation	1	-.157*
	Sig. (2-tailed)		.042
	N	176	168
Income	Pearson Correlation	-.157*	1
	Sig. (2-tailed)	.042	
	N	168	177

*. Correlation is significant at the 0.05 level (2-tailed).

One-Sample Test

Test Value = 0

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference Lower	Upper
BMI	53.590	175	.000	26.45739	25.4830	27.4318
Gender	38.784	186	.000	1.28877	1.2232	1.3543

Hypothesis (4): There is a statistical difference between the WHO standard cutoffs and the suggested standard cutoffs for overweight and obesity on individuals of Asian descent.

One-Sample Test

Test Value = 0

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference Lower	Upper
BMI	53.590	175	.000	26.45739	25.4830	27.4318
BMI_Asian	11.457	14	.000	2.46667	2.0049	2.9284

Conclusion

- *Hypothesis (1):* Found no statistical significance on acculturation and BMI levels. However, there is a trend in the data that show negative correlation between the two variables.
- *Hypothesis (2):* No statistical significance was found. Mean for Hispanic/Latinx Americans were slightly higher compared to other groups. Asian Americans have the lowest mean.
- *Hypothesis (3):* There is a significant negative correlation found between BMI and income. Lower income were at higher risk for higher BMI levels. There is statistical significance found between gender and BMI levels.
- *Hypothesis (4):* Statistical difference was found between the BMI standard cutoffs and the suggested BMI cutoffs for individuals of Asian descent.

Suggestions for Future Studies

- Further explore the utilization of different BMI standard cutoffs for various racial groups.
- Future research should focus on the education in search of correlation between BMI.
- Due to the target sample substantially sourced by the University of Bridgeport, participants in the study had a disproportionate number of females, had an average household income above the poverty line, and African Americans. A goal for future research will be to diversify the sampling pool.

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